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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,691	03/11/2008	Alexander Buryak	2085.005US1	2987
21186 7590 05/11/2010 SCHWEGMAN, LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			EXAMINER FONT, FRANK G	
			ART UNIT 2872	PAPER NUMBER
			NOTIFICATION DATE 05/11/2010	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/565,691	Applicant(s) BURYAK ET AL.	
	Examiner FRANK G. FONT	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 23-33 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 23-33 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/17/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Pre-Amendment

The pre-amendment canceling claim 22, amending claims 3-5, 8, 10-12, 15-21, 23-26, 28-33, and amending the specification was entered.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 2/17/2006 was considered by the examiner.

Specification

The abstract of the disclosure is objected to because the abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, **apart from any other text**. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: lines 3 and 4 of the substitute sheet page 13 of the specification is non-sensical. Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-12 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claimed invention is directed to a judicial exception to 35 U.S.C. 101 (i.e., an abstract idea – an algorithm) and is not directed to a practical application of such judicial exception because the invention as claimed does not require any physical transformation of the

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optical data carrier and the invention as claimed does not produce a useful, concrete, and tangible result. An example of a physical transformation that would meet 35 U.S.C. 101 would be “storing the series of grating functions on the optical data carrier” as an additional step in claim

1. Thus, claim 1 would look like the following:

1. A method of holographically storing data as in a series of grating structures including m -level coded elements in an optical data carrier, wherein $m \geq 2$, the method comprising:
 forming for each grating structure a grating sampling function as a direct sum of N partial grating sampling functions, each partial grating sampling function having a phase (ϕ_n) and amplitude (d_n), wherein each d_n has m possible values,
 storing the series of grating functions on the optical data carrier.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Maillot et al. (U.S. Patent No. 5,659,536).

Regarding claim 13, Maillot et al. at the paragraph bridging columns 1 and 2 clearly anticipates every limitation in claim 13 wherein the m -level coded elements with $m \geq 2$ is met by the words "several bits" in the sentence that bridges columns 1 and 2, since it is inherent that the "several bits" would have to be encoded in the holographic data. Note also lines 5-11 in column 2 where it states that each bit of information corresponds to a grating pitch wherein a varying

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pitch would correspond to the presence of more than one bit; thus the information bits are encoded in the grating pitch.

Regarding claims 14-16, Maillot et al. meets the claimed limitations at the very least assuming the most simple case where $N=1$ and $0.5 \leq x \leq 1$. Regarding the refractive index limitation, see column 2 lines 41-48 of Maillot et al.

Regarding claim 17, Maillot et al. at column 4 lines 46-48 disclose that layer 16 is disk-shaped.

Regarding claim 18, Maillot et al. meets the one-dimensional grating structure.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 19-21 and 23-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maillot et al. (U.S. Patent No. 5,659,536) in view of Speer et al. (U.S. PGPub No. 2004/0050484 A1).

Regarding claims 19 and 23-33, Maillot et al. teaches the limitations of the parent claim of claim 19, but does not teach an optical data carrier comprised of a rolled-up strip in which a plurality of gratings are formed. Speer et al., in the same field of endeavor (optical data carriers) provides evidence that such an optical data carrier was known at the time of applicant's invention. It would have been obvious to modify the Maillot et al. data disk by using for the data carrier a rolled-up data strip rather than a planar disk. The method of implementing this change would meet the method step limitations of claims 23-25 and 30-33; the structural limitations in claims 25 and 26-28 are already met by Maillot et al. alone as stated in the preceding rejection. The motivation would have been to provide a more versatile implementation of the Maillot et al. invention as, e.g., a more economical way to record data.

Regarding claims 20, 21 and 29, Speer et al. discloses using glue (see abstract) to fix the films to a substrate, and to wind the films into a disk-shaped spool.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Levich et al. discloses two-dimensional data writing on a CD/DVD. MacLeod et al. (WO 99/39338) discloses holographic storage of data on an optical data carrier.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANK G. FONT whose telephone number is (571)272-2415.

The examiner can normally be reached on M-Th 10:00 AM - 8:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on (571) 272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Frank G Font/
Primary Examiner, Art Unit 2883

May 6, 2010